croase in the high-frequency energy losses. It is also important to concentrate the electromagnetic energy in the radial direction only in the regions where the accelerated particles are moving. Thus for a given field strength the electromagnetic energy flux decreases markedly. If the fluxes of accelerated particles are large, the waveguide properties necessary for acceleration can be ensured by the particles of the beam which are not entrapped in the acceleration process, through which particles the entrapped particles move. The beam itself which is injected into the accelerator operates under these conditions of an accelerating system. To clarify the possibilities of particle acceleration by means of electromagnetic waves excited by charged particle beams, and also to investigate the influence of beam instabilities upon the acceleration process, the Physicotechnical Institute, Academy of Sciences Ukrainian SSR conducted theoretical and experimental investigations on the interaction of charged particle beams with a plasma. These investigations were intended to lead to, not the design and construction of a definite accelerator model, but the physical processes occurring during the interaction under consideration, and in this way to a determination of the possibilities of plasma methods of acceleration which are being developed at this institute. The theory developed up to the present time of the interaction between beams and plasma has been essentially a linear theory. As a result of the work of V. D. Shapiro and V.

L 4242-66
ACCESSION NR: AT5007973

I. Shevchenko at this institute for the case of beams of not very large density, a nonlinear theory has been created which permits one to trace the process of interaction of an initially nonmodulated beam and mono-energetic beam with a plasma from the initial stage to saturation. As is shown, a large part of the beam's energy of ordered motion (75% of its initial energy) is lost by the beam as a result of collective interactions with the plasma. Thus the energy expended upon excitation of oscillations amounts to 30%; upon increasing the thermal energy of the plasma, to 30%; and upon increasing the thermal energy of beam, to 15%. The experimental investigations of this interaction were carried out by I. F. Kharchenko and A. K. Berezin and their respective co-workers. Their results are in agreement with the theory of M. F. Gorbatenko. The mentioned institute has also carried out further theoretical and experimental investigations on the problems of electromagnetic wave propagation in plasma waveguides excited by high-frequency wall sources. The experimental studies, by O. G. Zagorodnov, et al., showed that the results agree well with theory under conditions of insignificant nonlinear effects. Current experiments are concerned with highly-ionized plasmas with density 10^{11} to 10^{12}. Orig. art. has: 4 figures, 1 table.

Card 4/5

L 4242-66

ACCESSION NR: AT5007973

3

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UkrSSR (Physicotechnical Institute, AN UkrSSR)

SUBMITTED: 26May64 ENCL: 00 SUB CODE: NP

NO REF SOV: 005 OTHER: 001

BVK

Card 5/5

L 40089-66 EWT(1)/EWT(m)/EWP(w) IJP(c) EM/NW/GD

ACC NR: AT6020568 (N) SOURCE CODE: UR/0000/65/000/000/0083/0088

AUTHOR: Gorbatenko, M. F.; Kruilko, V. I.

ORG: none

TITLE: Kinetic theory of surface waves in a plasma waveguide

SOURCE: AN UkrSSR. Vysokochastotnyye svoystva plazmy (High frequency properties of plasma). Kiev, Naukovo dumka, 1965, 83-88

TOPIC TAGS: kinetic theory, plasma waveguide, Maxwell distribution, plasma electron temperature

ABSTRACT: The damping coefficient of the surface wave on a plane unbounded surface is proportional to thermal velocity for small thermal velocities of plasma electrons. This effect is investigated in the case of a plasma waveguide formed by a layer of plasma of finite thickness. The starting point is the Vlasov and Maxwell equations for the high frequency part of the distribution function (with the equilibrium part given by a Maxwellian distribution). The form of the solution is a product of the space function with the time and space harmonic parts. A general solution for the distribution function is obtained and used to derive integro-differential equations for the electric field components. This is solved approximately for the case of small thermal velocities. It is shown that in this problem, the damping coefficient of the wave is also

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ACC NR: AT6020568

proportional to the electron thermal velocity. However, as the plasma layer thickness decreases the phase velocity of the wave decreases. Orig. art. has: 12 formulas.

SUB CODE: 20/ SUBM DATE: 19Nov65/ ORIG REF: 002

Card 2/2

L 08808-67 EWT(1) IJP(c) AT/GD

ACC NR: AT6020440 (N) SOURCE CODE: UR/0000/65/000/0[illegible]/0103/0111

AUTHOR: Gorbatenko, M. F.; Shapiro, V. D.

54

ORG: none

TITLE: Quasilinear theory of the interaction of bounded beams and a plasma in a strong magnetic field

SOURCE: AN UkrSSR. Vzaimodeystviye puchkov zaryazhennykh chastits s plazmoy (Interaction of charged particle beams with plasma). Kiev, Naukova dumka, 1965, 103-111

TOPIC TAGS: plasma beam interaction, plasma instability, strong magnetic field

ABSTRACT: Utilizing the results of V. D. Shapiro and V. I. Shevchenko in *ZhETF*, 1962, 45, 1515, the development of instabilities during the interaction of a low density cylindrical beam with a plasma is investigated by including the nonlinear approximations. The boundary condition on the plasma is taken to be a conducting wall and the plasma is contained by a strong magnetic field. First, the interaction of plasma with a uniform beam with small thermal spread is considered. It is shown that in this case, quasilinear theory can be applied when the amplitude of excitation becomes great. Next, a beam with great thermal energy component is analyzed. The dispersion relation for this case yields the amount of change of thermal energy of the beam. This, in turn, shows that most of the directed energy of the beam is converted into plasma thermal

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L 08808-67

ACC NR: AT6020440

energy. In the case considered here, the deceleration of the beam and excitation of oscillations are derived and shown to be much longer than in the unbounded case if certain parameters are satisfied. The instability development is traced through the saturation phase and the establishment of a stationary state. Orig. art. has: 25 formulas.

SUB CODE: 20/ SUBM DATE: 11Nov65/ ORIG REF: 011

Card 2/2 nst

AZAROV, K.P., dotsent, kand.tekhn.nauk; ZHDANOV, Yu.A., dotsent, kand. khimicheskikh i filosofskikh nauk; SKALOZUBOV, M.F., dotsent, kand.tekhn.nauk; uchastvovali; GORBATENKO, V.Ye.; GORBATENKO, N.G.; CVODOVA, A.V.

Use of glasses and glass frits in fertilizing the soil with trace elements. Trudy MPI 47:3-10. '58. (MIRA 13:5)
(Glass) (Fertilizers and manures)

GORBATENKO, P., inzh.-normirovshchik

Loading corn from elevated platforms into gondola cars. Muk.-elev. prom. 29 no.5:29 My '63. (MIRA 16:7)

1. Kiyevskaya normativno-issledovatel'skaya stantsiya.
(No subject headings)

GORBATENKO, P.

Drying corn in "Kuzbass" grain dryers. Mukomel.prom. 21 no.1:25 Ja '55. (MLRA 8:5)

1. Kiyevskaya normativno-issledovatel'skaya stantsiya Zagotzerno.
(Corn (Maize)--Drying) (Drying apparatus)

GORBATENKO, P., inzh.

Defects in loading and unloading machinery. Muk.-elev. prom. 26 no.10:18-19 0'60. (MIRA 13:10)

1. Kiyevskaya normativno-issledovatel'skaya stantsiya.
(Grain-handling machinery) (Loading and unloading)

GORBATENKO, P., inzh.

Device for packing bags of flour into jute sacks. Muk.-elev. prom. 28 no.1:23 Ja '62. (MIRA 16:7)

1. Kiyevskaya normativno-issledovatel'skaya stantsiya.
(Flour--Packing)

21338
S/040/61/025/006/004/021
D299/D304

16,3400 16,8000

AUTHOR: Gorbatenko, S.A. (Moscow)

TITLE: On the stability of a nonlinear control system

PERIODICAL: Prikladnaya matematika i mekhanika, v. 25, no. 6, 1961, 1003 - 1010

TEXT: A system with the nonlinear characteristic of plant and control element is considered. Stability of the undisturbed system motion is investigated (by Lyapunov's method) for a characteristic equation with 2 zero roots, whereas all the other roots have negative real parts. The equations of the disturbed system are

$$\frac{dx_k}{dt} = \sum_{a=1}^{n+1} b_{ka}x_a + n_k x_{n+2} \qquad (k = 1, 2, \ldots, n+1)$$
$$\frac{dx_{n+2}}{dt} = f(\sigma), \qquad \sigma = \sum_{a=1}^{n+1} p_a x_a + p_{n+2}x_{n+2} \qquad (1.1)$$

where x_k are the generalized coordinates of the plant, x_{n+2} - the

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On the stability of a nonlinear ...

coordinate of the control element, σ - the control signal , b, n, p - known constant parameters. It is assumed that $f(\sigma)$ can be approximated by a function of type

$$f(\sigma) = K\sigma^N + K_1\sigma^{N+1} + \ldots \quad (N > 2). \tag{1.2}$$

Assuming the roots λ as known, system (1.1) is transformed into Lur'ye's canonical form

$$\frac{dz_s}{dt} = \lambda_s z_s + f(\sigma) \quad (s = 1, \ldots, n), \qquad \frac{dz_{n+1}}{dt} = f(\sigma)$$
$$\frac{d\sigma}{dt} = \sum_1^n \beta_s z_s + \beta_{n+1} z_{n+1} - rf(\sigma) \tag{2.1}$$

here $\lambda_1, \ldots, \lambda_n$ are the non-zero roots of the characteristic equation of the plant; the transformation parameters

$$z_s = \sum_{\alpha=1}^{n+1} C_{s\alpha}\, x_\alpha + x_{n+2} \quad (s = 1, \ldots, n+1). \tag{2.2}$$

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and the quantities β are determined by Lur'ye's method. After transformations, one obtains the following stability criterion: the necessary and sufficient conditions for the stability of system (1.1), are that N should be an odd number, and that

$$\beta_{n+1}K < 0, \qquad BKN > 0, \tag{2.11}$$

where B involves σ, z and r. The requirement that N should be odd amounts to the requirement of an odd characteristic of the control element. Conditions (2.11) permit constructing the region of allowed values of the controller parameters. Further, it is assumed that the roots of the characteristic equations of system (1.1) are not known. In this case one obtains as the stability conditions: N should be odd, and

$$KB_{n+1}\left(\sum_{\alpha=1}^{n} p_\alpha' C_\alpha + p_x\right)^N < 0$$
$$NKB_{n+1}\left(\sum_{\alpha=1}^{n} p_\alpha' C_\alpha + p_x\right)^{N-1}\left(\sum_{\alpha=1}^{n} p_\alpha' D_\alpha + p_v\right) + NKA_{n+1}\left(\sum_{\alpha=1}^{n} p_\alpha' C_\alpha + p_x\right)^N < 0 \tag{3.6}$$

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On the stability of a nonlinear ...

The above conditions were obtained on the assumption that $\alpha_0 > \beta_0$ (i.e. $N > N-1$). If this inequality does not hold, other stability conditions are obtained. Further, the case is considered when nonlinear terms enter the right-hand sides of the first n+1 equations of system (1.1). Consider, instead of (1.1), the system

$$\frac{dx_k}{dt} = \sum_{\alpha=1}^{n+1} b_{k\alpha}x_\alpha + n_k x_{n+2} + \Phi_k(x_1, \ldots, x_{n+2}) \qquad (k = 1, \ldots, n+1)$$

$$\frac{dx_{n+2}}{dt} = f(\sigma), \qquad \sigma = \sum_{\alpha=1}^{n+1} p_\alpha x_\alpha + p_{n+2}x_{n+2} \tag{5.1}$$

where

$$\Phi_k = \sum_{\alpha=1}^{n+2} d_{k\alpha}x_\alpha^2 + \sum_{\alpha=1}^{n+2} m_{k\alpha}x_\alpha^3 \qquad (k = 1, \ldots, n+1)$$

After transformations, the following necessary and sufficient stability conditions are obtained for system (5.1)

$$a_0(d_{k\alpha}) = 0, \quad b_0(d_{k\alpha}) = 0 \tag{5.2}$$

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On the stability of a nonlinear [redacted].

$$a_1(d_{k\alpha}, m_{k\alpha}) < 0, \quad b_1(d_{k\alpha}, m_{k\alpha}) < 0. \qquad (5.3)$$

It is noted that condition (5.2) cannot be satisfied if $d_{k\alpha} \neq 0$ and $N > 2$. Therefore in this case it is necessary that $N = 2$ in Eq. (1.2). There are 4 Soviet-bloc references.

SUBMITTED: April 10, 1961

Card 5/5

mekhanika (Theoretical mechanics), no. 1, 35-39

TOPIC TAGS: stable motion, control system, nonlinear control object, critical motion stability

ABSTRACT: The system under consideration consists of a control [illegible] The critical motion of the system is described

$$\frac{dx_k}{dt} = \sum_{s=1}^{n} a_{ks} x_s + a_k x_{n+1} + \Phi_k(t, x_1, \ldots, x_{n+1}),$$

$$\frac{dx_{n+1}}{dt} = f(x_{n+1}) \qquad (k = 1, \ldots, n+2),$$

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ACCESSION NR

$$\Phi_k = \sum_{a=1}^{n+3} d_{ka} x^2_a + \sum_{a=1}^{n+3} m_{ka} x^3_a \qquad (1,3)$$

The [illegible] roots of the characteristic equation

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L 25061-65

ACCESSION NR: AP5003203

NO REF SOV: 002 OTHER: 000

Card 3/3

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000516110002-5"

TITLE: Stability of the control system in the critical case

$$\frac{dx_k}{dt} = \sum^{n+1} b_{k_0} x_0 + n_k x_{n+2} + \Phi_k(x_1, \ldots, x_{n+2}); \quad (k = 1, \ldots n+1) \quad (1.1) \qquad (1)$$

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ACCESSION NR: AT5003206

$$\sigma = \sum_{k=1}^{n+1} p_k x_k + p_{n+2} x_{n+2}. \qquad (2)$$

[illegible] can be represented in the form

$$\Phi_k = \sum_{i=1}^{n+1} d_{ik} x_i^2 + \sum_{i=1}^{n+1} m_{ik} x_i^2 \qquad (3)$$

[illegible]

[illegible]
(Peoples Friendship University)
SUBMITTED: 00 ENCL: 00 SUB CODE: IE
NO REF SOV: 003 OTHER: 000
Card 2/2

GORBATENKO, S.A.

Limits of the application and precision of the Van-der-Pole method in the theory of nonlinear vibrations of autonomous systems. Trudy Un. drush. nar. 5 Teor. mekh. no.2:45-69 '64.

Stability of unsteady motion of short-time acting controlled systems in a particular case. Ibid.:83-93

(MIRA 18:9)

SOURCE: Ref. zh. Matematika, Abs. 9B710

AUTHOR: Gorbatenko, S. A.

TITLE: Stability of non-steady state motion of controlled systems of short time effect in a particular case

CITED SOURCE: Tr. Un-ta druzhby narodov im. Patrisa Lumumby, v. 5, 1964, 83-93

TOPIC TAGS: differential equation, stability

TRANSLATION: A controlled system with variable parameters and nonlinearities depending on time is studied. The characteristic equation of the linear part of the system at any moment of time has two zero roots and n roots with negative real parts. Problems of stability of unperturbed motion on a finite time interval are investigated. The minimal interval of time on which stability is guaranteed is determined, and the dependence of this interval on the parameters of the control system are studied. Ye. Barbashin

ENCL: 00

L 11128-66 EWT(d)/EWT(l)/EWP(m)/FS(v)-3/EWA(d)/T/EWP(l) IJP(c) GW

ACC NR: AT5028802 SOURCE CODE: UR/3124/64/005/000/0045/0069

44 55

AUTHOR: Gorbatenko, S. A. 44 55

ORG: People's Friendship University, Moscow (Universitet druzhby narodov)

TITLE: Problem of bounds of applicability and accuracy of Van der Pol's method in theory of nonlinear oscillations of autonomous systems

SOURCE: Moscow. Universitet druzhby narodov. Trudy, v. 5, 1964. Teoreticheskaya mekhanika (Theoretical mechanics), no. 2, 45-69

TOPIC TAGS: differential equation, stability

ABSTRACT: Restricting consideration to systems with one degree of freedom (since the extension to more degrees of freedom is not difficult), the author considers

$$\ddot{x}+x=\mu f(x,\dot{x},\mu), \qquad (1)$$

where $\mu > 0$ and $f(x,\dot{x},\mu)$ is holomorphic in its variables, with $f(0,0,\mu) = 0$. Results given by the approximate method of Van der Pol are compared with the rigorous results of Poincare-Lyapunov and G. V. Kamenkov (K teorii nelineynykh kolebaniy. Doklad na mezhvuzovskoy konferentsii po ustoychivosti i upravlyayemosti mekhanicheskikh sistem i aeromekhanike, M., 1-5 fevralya 1962) and (Issledovaniye nelineynykh kolebaniy avtonomnykh sistem s pomoshch'yu funktsiy Lyapunova. Doklad na mezhvuzovskoy konferentsii, posvyashchennoy probleme kolebaniy mekhanicheskikh sistem, Riga, 30

Card 1/2

L 11128-66

ACC NR: AT5028802

Maya - 5 yunya, 1962.) Cases are presented in which the method of Van der Pol yields qualitatively false results. It is also shown that the proof of Mandel'brot and Papaleksi concerning applicability of the Van der Pol approximations cannot serve as a criterion for legitimate applicability of this method. Orig. art. has: 4 figures and 82 formulas.

SUB CODE: 12/ SUBM DATE: none/ ORIG REF: 005

Card 2/2

GORBATENKO, T. I.

GORBATENKO, T. I. -- "Aspects of Imitation of Children of Pre-School Age." Moscow State Pedagogical Inst imeni V. I. Lenin. Moscow, 1955. (Dissertation for the Degree of Candidate in Pedagogical Sciences).

So.: Knizhnaya Letopis', No. 2, 1956.

GORBATENKO, Tamara Ivanovna

[The Ulan-Ude Glass Factory is 25 years old; a historical and economic account]25 let Ulan-Udenskomu stekol'nomu zavodu; istoriko-ekonomicheskii ocherk. Ulan-Ude, Buriatskoe knizhnoe izd-vo, 1961. 175 p. (MIRA 16:1)
(Ulan-Ude--Glass factories)

GORBATENKO, T.I.; PTITSYNA, N.I.

Using a dextrin solution as bonding material for high-grog refractories. Stek. i ker. 20 no.10:42-43 O '63. (MIRA 16:10)

(Refractory materials)

GORBATENKO, T.I.; PTITSYNA, N.I.

Intensification of the melting and the refining of glass. Stek. i ker. 22 no.2:28-29 F '65. (MIRA 18:3)

TARAN, S.A.; GORBATENKO, V.G.

Automatic machine for straightening and cutting copper busbars.
Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekh.inform.
17 no.7:45-46 Jl '64. (MIRA 17:10)

GORBATENKO, V.N.

Setting up an optimal probability program in a linear system with stochastic constraints on the phase coordinates. Vest. LGU 20 no.13: 20-25 '65. (MIRA 18:7)

L 1954-66 EWT(d)/EPF(n)-2/EWP(1) IJP(c) WW/BC

ACCESSION NR: AP5019928 UR/0043/65/000/003/0020/0025

AUTHOR: Gorbatenko, V. N. 55

13
B

TITLE: The construction of a program optimal in probability in a linear system under probability constraints on the phase coordinates

SOURCE: Leningrad. Universitet. Vestnik. Seriya matematiki, mekhaniki i astronomii, no. 3, 1965, 20-25

TOPIC TAGS: control theory, optimal linear system

ABSTRACT: For a linear control system having random input, random control coefficients, and random perturbations, the problem of constructing a program optimal within probability, when probability constraints are placed on the phase coordinates under normal distribution of the random quantities, is reduced to the minimization problem of V. F. Dem'yanov [*Avtomatika i telemekhanika*, XXV, 11, 1964]. For the equations

$$\dot{X}(t)=A(t)X(t)+\sum_{j=1}^{r}B_j(t)u_j(t)+F(t)$$

with the initial condition $X(0) = X_0$, it is required to choose $u(t)$ so as to maxi-

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L 1954-66

ACCESSION NR: AP5019928

mize the probability that the end of the vector $X(T, u)$ will fall in a given region R of n-space under the condition that the vector $X(t, u)$ will pass beyond a given region D with a probability that does not exceed a given positive arbitrary quantity. Orig. art. has: 53 formulas.

ASSOCIATION: none

SUBMITTED: 18Dec63 ENCL: 00 SUB CODE: MA, DP

NO REF SOV: 002 OTHER: 000

Card 2/2

GORBATENKO, V.P.; MATVEYEVA, L.S., kand.med.nauk (Moskva)

Splenoportography and splenomanometry in the diagnosis of portal hypertension. Klin.med. 39 no.2:87-91 F '61. (MIRA 14:3)

1. Iz gospital'noy terapevticheskoy kliniki (dir. - deystvitel'nyy chlen AMN SSSR prof. A.L. Myasnikov) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova.
(ANGIOGRAPHY) (HYPERTENSION)

MATVEYEVA, L.S., kand.med.nauk (Moskva, G-59, 3-y Berezhkovskiy per.)
GORBATENKO, V.P.

Portal hypertension of hepatic origin combined with thrombosis in the portal vein system. Vest. rent. i rad. 38 no.1:37-40 Ja-F'63. (MIRA 16:10)

1. Iz gospital'noy terapevticheskoy kliniki (zav. - deystvitel'nyy chlen AMN SSSR prof. A.L.Myasnikov) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M.Sechenova.

RABINOVICH, O.M., prof.; GORBATENKO, V.Ya., inzh.

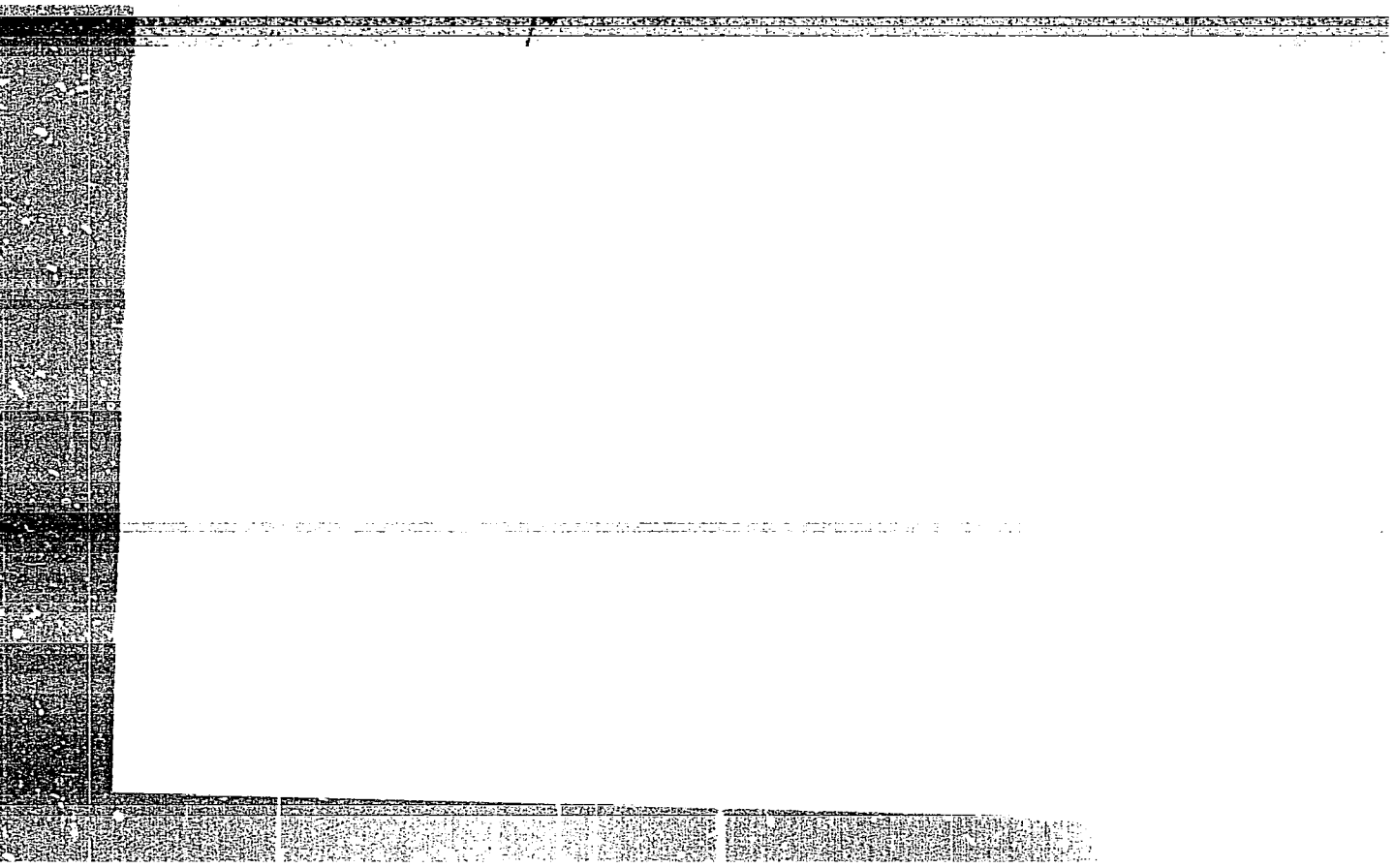
Preventing low-temperature corrosion by means of ammonia admixture to the combustion products. Teploenergetika 7 no.10:31-36 O '60. (MIRA 14:9)

1. Khar'kovskiy politekhnicheskiy institut.
(Corrosion and anticorrosives)
(Boilers)

RABINOVICH, O.M.; FAYERSHTEYN, D.G.; GORBATENKO, V.Ya.; GORBATKO, P.A.

Effect of the reducing of ball loading on the efficiency of a drum-type ball mill. Trudy KhPI, Ser.mash. 19 no.5:51-59 '59.
(MIRA 14:9)

(Coal, Pulverized--Equipment and supplies)



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GORBATENKO, V. YE.

USSR/Chemical Technology. Chemical Products and Their Application -- Fertilizers, I-6

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 5064

Author: Zhdanov, Yu. A., Azarov, K. P., Gorbatenko, V. Ye.

Institution: Academy of Sciences USSR

Title: Glasses and Frits for Supplying Minor Elements to the Soil

Original Publication: Dokl. AN SSSR, 1956, 108, No 6, 1129-1131

Abstract: To improve the distribution of minor elements (ME) B, Mn, Cu, Zn, Fe, Mo, Co, within the soil, to decrease their combining with other soil components and to reduce their leaching, it is advantageous to add to the soil ME that have been fused or fritted with glass. Solubility of the glass or frit is regulated by composition of the glass or by changes in the procedure of its production. Growing experiments are described which serve to determine the efficacy of minor element fertilizers prepared from readily fusible 3- or 2-component glasses, window glass scrap or phosphate glass, containing also P, K, etc, by

Card 1/2

USSR/Chemical Technology. Chemical Products and Their Application -- Fertilizers, I-6

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 5064

Abstract: melting with ME at 1,100-1,200° until a uniform melt results and gas evolution ceases, or by fritting with the appropriate oxides at 900° to get a spongy, sintered material, or by mixing different glass powders. Experiments have shown that ME of frits are fully assimulated by plants.

Card 2/2

GORBATENKO, V. Ye.

AUTHOR: Azarov, K.P., Gorbatenko, V.Ye. 32-9-30/43

TITLE: A Device for the Determination of Warping of Steel Plates During the Process of Enamelling (Pribor dlya opredeleniya korobleniya listovoy stali v protsesse emalirovaniya)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 9, pp.1128-1129 (USSR)

ABSTRACT: A newly developed device by means of which it is possible to determine the degree of warping of steel plates after being heated is described here. Experiments carried out with this device made it possible to find out which type of steel shows the greatest amount of resistance against warping. Experiments also showed the differences in the change of curvature in dependence upon the direction of rolling; curvature in the direction of rolling changes much less than a curvature that is vertical to the direction of rolling. There is 1 figure.

ASSOCIATION: Polytechnic Institute imeni Sergo Ordzhonikidze of Novocherkassk (Novocherkasskiy politekhnicheskiy institut im.Sergo Ordzhonikidze)

AVAILABLE: Library of Congress

Card 1/1

AUTHORS: Asarov, K. P., Gorbatenko, V. Ya. SOV/72-58-7-11/19

TITLE: Determination of the Optical Indexes of Enamel- and Glaze Coats (Opredeleniye opticheskikh pokazateley emalevykh i glazurnykh pokrytiy)

PERIODICAL: Steklo i keramika, 1958, Nr 7, pp. 36 - 40 (USSR)

ABSTRACT: The coloration of small flat samples can be measured by means of colorimeter, spectrophotometer, color-comparator, and other devices, as is shown in the papers by M. M. Gurevich, L. N. Meyyer, D. A. Shklover and R. S. Ioffe (Ref 1). All these devices are, however, not apt for the checking of ceramic and enameled industrial products, since the examination cannot be carried out without a destruction of the latter. The existing devices for the determination of the whiteness and gloss of the products (see Ref 2, the papers by V. A. Lokshin and V. S. Fadeyev) do not take into account the coloration of the coats and cannot be used in all cases. The construction of the device which was developed by the authors of this paper with the aid of V. N. Krolikov permits the control of the whiteness and coloration of

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different products without destruction of the latter. The scheme 1,b (Fig 1) was used in this device instead of the usual scheme 1,a; the first scheme yields practically the same results as is shown in the paper by P. M. Tikhodeyev (Ref 3). The electric diagram of this device is shown in Fig 2. The illuminating device OI-7, or OI-19, respectively is used for the production of the head for the measuring of the whiteness (external view see Fig 3) with an incandescent bulb of the type STs-61. For the measurement of the gloss the head is provided with a headpiece (Fig 5) according to the scheme of Fig 4. Furthermore a formula (1) is given for the calculation of the witheness. In order to measure the coloration of achromatic surfaces, the casing C was provided alternately with a blue (SS-5), green (ZS-1), orange (OS-14) and red (KS-13) light filter and the diffuse reflection is determined. The results obtained by the determination of the whiteness and the coloration of slightly colored enamel coats are given in Table 1. The results for surfaces with chromatic color are given in Table 2.

Determination of the Optical Indexes of Enamel- and Glaze Coats SOV/ 72-58-7-11/19

For the gloss determination of the coats the head (Figs4 and 5) is adjusted alternately to a gloss etalon and then to a flat part of the controlled product. The gloss is calculated according to one of the three given formulas (4, 5, and 6). The determination results of the gloss are shown in Table 3; the calculations are carried out by means of the formulas (4) and (5). There are 5 figures, 3 tables, and 8 references, 6 of which are Soviet.

1. Enamel coatings--Optical properties 2. Enamel coatings --Colorimetric analysis 3. Ceramic materials--Optical properties 4. Ceramic materials--Colorimetric analysis

Card 3/3

AUTHORS: Azarov, K. P., Gorbatenko, V. Ye. SOV/32-24-8-39/43

TITLE: An Apparatus for Determining the Whiteness, Glaze, and Coloring of Enamel Coatings(Pribor dlya opredeleniya belizny, bleska i tsvetnosti emalevykh pokrytiy)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 8, pp. 1033 - 1034 (USSR)

ABSTRACT: The apparatus devised to make these determinations consists of three parts: a measuring head, a voltmeter, and a source of current (accumulator or voltage stabilizer). A schematic diagram of the optical and electrical set-up is given. The measuring head consists of a OI-7 exposure apparatus with iris diaphragm, condensor lenses, and a box for the filters and four selenium photo-electric cells. The whiteness is determined by using barium sulfate as a comparison and calculating according to a formula. The coloring of the enamel is determined using light filters, and the final value is calculated by a given equation. The glaze is measured in terms of the amount of light reflected from an angle of 45° at the surface being tested. This reflection is

Card 1/2

An Apparatus for Determining the Whiteness, and Coloring of Enamel Coatings — Glaze, SOV/32-24-8-39/43

measured by the selenium photo-electric cells and compared to the reflection from a standard surface. Equations for calculation are given. There are 2 figures and 1 reference, which is Soviet.

ASSOCIATION: Laboratoriya emaley Novocherkasskogo politekhnicheskogo instituta imeni S.Ordzhonikidze(Laboratory for Enamel of the Novocherkassk Polytechnical Institute imeni S.Ordzhonikidze)

Card 2/2

AZAROV, K.P., dotsent, kand.tekhn.nauk; ZHDANOV, Yu.A., dotsent, kand. khimicheskikh i filosofskikh nauk; SKALOZUBOV, M.F., dotsent, kand.tekhn.nauk; uchastvovali: GORBATENKO, V.Ye.; GORBATENKO, M.G.; OVCHOVA, A.V.

Use of glasses and glass frits in fertilizing the soil with trace elements. Trudy MPI 47:3-10. '58. (MIRA 13:5)
(Glass) (Fertilizers and manures)

AZAROV, K.P., dotsent, kand.tekhn.nauk; GORBATENKO, V.Ye., starshiy prepodavatel'

Instruments controlling the manufacture of enameled wares.
Trudy MPI 47:201-227 '58. (MIRA 13:5)

1. Novocherkasskiy ordena Trudovogo Krasnogo Znameni politekhnicheskiy institut imeni Sergo Ordzhonikidze; kafedra tekhnologii keramiki, stekla i emaley.
(Enameled ware)

SOV/32-25-4-47/71

28(4)
AUTHORS: Azarov, K. P., Gorbatenko, V. Ye., Krolikov, V. N.

TITLE: A Simple Device for Measuring the Thickness of Nonferromagnetic Coatings on Steel (Prostoy pribor dlya izmereniya tolshchiny neferromagnitnykh pokrytiy na stali)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 4, p 486 (USSR)

ABSTRACT: The electromagnetic layer thickness gauges with balanced (Ref 1) and not balanced (Ref 2) bridge offer a high measuring accuracy, but the devices are complicated and not always practicable for use. A pocket layer thickness gauge (Figure) is described which was designed in imitation of a device described in American publications (Ref 3). The working principle of the device is based on the measurement of the attractive force of a permanent magnet of the ferromagnetic basis depending on the thickness of the nonmagnetic coating. The device has the shape of a fountain pen holding the ball-shaped permanent magnet instead of the writing pen. The case of the device is made of organic glass and is provided with a measuring scale. Inside the device, there is a spiral spring; by its stretching, the layer thickness can be read off on the measuring scale depending

Card 1/2

A Simple Device for Measuring the Thickness of Nonferromagnetic Coatings on Steel

on the layer thickness of the coat to be measured. There are 1 figure and 3 references, 2 of which are Soviet.

ASSOCIATION: Laboratoriya emaley Novocherkasskogo politekhnicheskogo instituta im. S. Ordzhonikidze (Laboratory of Enamels of the Novocherkassk Polytechnic Institute imeni S. Ordzhonikidze)

SOV/136-59-1-17/24

AUTHORS: Azarov, K.P., and Gorbatenko, V.Ye.

TITLE: Enamelling of Aluminium (Ob emalirovanii alyuminiya)

PERIODICAL: Tsvetnyye Metally, 1959, Nr 1, pp 79-82 (USSR)

ABSTRACT: The authors review some non-Soviet data on the enamelling of aluminium. They describe their own tests with a range of phosphate enamels recommended (Ref 8) and Soviet-made aluminium sheet. The aluminium was degreased, treated with thiourea-containing sulphuric acid and oxidized with a solution containing chromium sulphate (1.2 g/litre), chromic anhydride (120 g/l) and sodium hydroxide (145 g/l) at 45-50° for 4-5 minutes. The washed specimens were then heated at 580-600°C for 5 minutes and enamelled, the coating (by dipping) and heating being repeated once or twice. Two of the seven enamels tried gave coatings of satisfactory appearance, resistance to acid (test procedure GOST 506-55) and adhesion (Ref 10). The compositions of these two enamels are, respectively: 2.7, 3.4% Li_2O; 10.9, 14.9% Na_2O; 7.4, 8.5% NaF; 18.7, 21.5% Al_2O_3; 6.4, 11.8% B_2O_3; 46.9, 35.9% P_2O_5;

Card 1/2

7.0, 4.0% CuO. The authors recommend that further work should be based on these enamels.
There are 4 tables and 10 references, 2 of which are Soviet, 7 English and 1 German.

ASSOCIATION: Novocherkasskiy politekhnicheskiy institut (Novocherkassk Polytechnic Institute)

S/081/60/000/022/006/016
A005/A001

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 22, p. 325, # 89425

AUTHORS: Azarov, K. P., Gorbatenko, V. Ye.

TITLE: On the Resistance to Bending of Enamel Coatings

PERIODICAL: Tr. Novocherk. politekhn. in-ta, 1959, Vol. 97, pp. 53-62

TEXT: A device is proposed for determining the bending strength of ready-made coatings. The device's design permits the bending of the specimens with both stretching and compression of the enamel layer. It turned out that the strength of thin coatings at bending with stretching depends in the first place on the magnitude of the average linear coefficient of thermal expansion of the enamel. It is shown that the bending strength of the coating considerably decreases with its increasing thickness. In this case, the enamel composition has markedly lower effect than with thin coatings.

Authors' summary

Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

S/081/60/000/022/010/016
A005/A001

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 22, p. 326, # 89433

AUTHORS: Azarov, K. P., Gorbatenko, V. Ye.

TITLE: Enamels for Aluminum

PERIODICAL: Tr. Novocherk. politekhn. in-ta, 1959, Vol. 97, pp. 63-71

TEXT: Results are presented from investigations of phosphate enamels (7 compositions) for enameling of native sheet aluminum. The specimens of sheet aluminum of 25 x 40 mm in size were freed from fat in an alkali solution containint (in g/l): hypophospite of Na 50, Na_2CO_3 50, water glass 30, at 60-70°C during 4-5 min. The specimens were washed during 15 min in water and treated at room temperature with a 6%-H_2SO_4 solution containing 0.1% thiocarbamide, and then they were subjected to chemical oxidizing at 45-50°C during 4-5 min. The washed and dried specimens were roasted at 580-600°C during 5 min and coated with enamel gross by dipping. After drying at 70-80°C the specimens were roasted in an electric furnace at 580-600°C during 5 min and cooled in air. Two compositions of enamel mixtures yielded satisfactory results (in percentage by weight): Li_2O 2.7

and 3.4; Na_2O 10.9 and 14.9; NaF 7.4 and 8.5; Al_2O_3 18.7 and 21.5; B_2O_3 6.4 and 11.8; P_2O_5 46.9 and 35.9; CuO 7.0 and 4.0. These coatings showed good results in tests on acid-resistance and cohesion strengths. The importance of the preliminary treatment of the metal before enameling is pointed out.

G. Gerashchenko

Translator's note: This is the full translation of the original Russian abstract.

GORBATENKO, V.Ya., inzh.

Dew point of smoke gases from industrial products of Donets Basin coal burned in layers. Izv.vys.ucheb.zav.; energ. 3 no.3:76-85 Mr '60. (MIRA 13:3)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina. Predstavlena kafedroy kotlostroyeniya.
(Combustion)

AZAROV, K.P.; GORBATENKO, V.Ye.

Effect of iron oxides on the thermal expansion coefficient of primer enamels. Zhur.prikl.khim. 34 no.8:1883-1885 Ag '61. (MIRA 14:8)

1. Laboratoriya emaley Novocherkasskogo politekhnicheskogo instituta.

(Enamel and enameling)
(Iron oxide)

S/032/62/028/008/013/014
B104/B10.2

AUTHORS: Azarov, K. P., and Gorbatenko, V. Ye.

TITLE: Instruments for measuring the thickness of coatings on a ferromagnetic base

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 8, 1962, 998 - 999

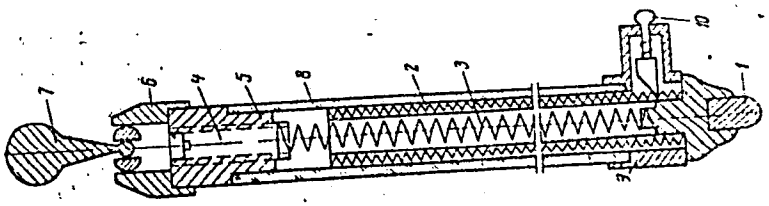
TEXT: The two instruments here described determine the thickness of coatings on ferromagnetic bases by reference to the attractive force which a permanent magnet (1)(Fig.1) exerts on the ferromagnetic material, this force being dependent on the intervening thickness. The magnet (1) is brought into contact with the surface to be tested and the rest of the instrument is then slowly pulled away. As the magnet remains stuck to the surface tube (2) is pulled out and the spring (3) inside it stretches until the tensile force overcomes the attraction of the magnet, separating the magnet from the surface. At the moment when this happens the position of the inner tube (2) against the outer tube (8) is arrested by (10) and the tensile force of the spring is read off. In the other instrument described, a watch spring performs the task of the spring (3) in the first

Instruments for measuring ...

instrument. Coatings with thicknesses between 0.06 and 1.5 mm can be measured. There are 2 figures and 2 tables.

ASSOCIATION: Novocherkasskiy politekhnicheskiy institut im. S. Ordzhonikidze (Novocherkassk Polytechnic Institute imeni S. Ordzhonikidze)

Fig. 1. Thickness measuring instrument.



AZAROV, K.P.; GORBATENKO, V.Ye.

Effect of the composition of enamels containing iron on the whiteness of the coating. Stek. i ker. 18 no.11:32-35 N '61. (MIRA 15:3)

(Enamel and enameling)

AZAROV, K.P.; GORBATENKO, V.Ye.

Gauges for measuring the thickness of coatings on a ferromagnetic base. Zav.lab. 28 no.8:998-999 '62. (MIRA 15:11)

1. Novocherkasskiy politekhnicheskiy institut imeni S.Ordzhonikidze.
(Protective coatings) (Thickness measurement)

AZAROV, K.P.; GORBATENKO, V.Ye.

Calculation of thermoelastic stresses in the enamel - metal system. Trudy NPI 154:63-77 '63.

(MIRA 17:10)

GORBATENKO, Yu.I.

Fixed planetary reducing gears. Stan i instr. 35 no.6:41 Je '64
(MIRA 17:8)

GORBATIKOV, V.A., inzh. (g.Sumgant)

Using a hydraulic connecting channel in diagrams of pump automation. Vod.i san.tekh. no.4:12-13 Ap '62. (MIRA 15:8)
(Pumping machinery) (Automatic control)

GORBATIKOV, V.A.

Economic efficiency in the use of the automatic and remote control of gas pipelines; as a topic for discussion. Gaz. prom. 7 no.2: 49-53 '62. (MIRA 17:6)

GORBATIKOV, Viktor Andreyevich; RYSKIN, Moisey Nisonovich; VRONSKIY, L.N., ved. red.

[Planning the overall automation of oil-field operations] Proektirovanie kompleksnoi avtomatizatsii neftianykh promyslov. Moskva, Nedra, 1965. 101 p. (MIRA 18:7)

GORBATKIN, B.I.

[Miner of a mechanized working face in vertical shaft sinking by special methods] Prokhodchik mekhanizirovannogo zaboia pri prokhodke vertikal'nykh stvolov spetsial'nymi sposobami. Moskva, Stroiizdat, 1964. 195 p. (MIRA 18:6)

GORBATKINA, Yu.A., Cand Phys Math Sci -- (diss) "Study of the structural vitrification of amorphous substances." Mos, 1959, 7 pp (Mos ~~State~~ Coby Pedagogical Inst im V.P. Potemkin) 150 copies. Bibliography at end of text (13 titles) (KL, 28-59, 122)

BARTENEV, G.M.; GORBATKINA, Yu.A.

Some regularities in the vitrification of rubber. Vysokom. soed. 1 no.5:769-775 My '59. (MIRA 12:10)

1. Moskovskiy pedagogicheskiy institut im. V.P.Potemkina. (Rubber).

S/081/62/000/024/035/052
B106/B186

AUTHOR: Gorbatkina, Yu. A.

TITLE: Dependence of the rubber vitrification temperature on the cooling rate

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 24(II), 1962, 922, abstract 24P775 (Uch. zap. Mosk. gor. ped. in-ta im. V. P. Potemkina, v. 86, 1960, 205 - 215)

TEXT: The dependence of the length l of specimens of the rubbers СКС-30 (SKS-30), СКН-18 (SKN-18) and СКН-40 (SKN-40) on the temperature T at different cooling rates W is studied. W was varied between 0.3 and 60 deg C/min. The curves (l,T) show a characteristic break at the vitrifying point.T_g. The changes of l associated with the deformation of the specimen under the action of the dilatometer spring were taken into account at $T > T_g$. The dependence of T_g on W is described by the equation of Bartenev $1/T_g = C_1 - C_2 \log W$. Also C_1 and C_2 were determined, and $C_2 : C_1 = 0.031$ as previously observed for glasses and plastics. The activation energies were

Dependence of the rubber...

calculated, these being directly proportional to T_g. The expansion coefficient α is independent of W if the studies are made under cooling conditions. [Abstracter's note: Complete translation.]

Card 2/2

S/190/60/002/010/002/026
B004/B054

AUTHOR: Gorbatkina, Yu. A.

TITLE: The Problem of Determining the Structural Vitrification Temperature on the Basis of Experimental Curves

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 10, pp. 1456-1458

TEXT: The author discusses the vitrification temperature T_v defined by M. V. Vol'kenshteyn and O. B. Ptitsyn (Ref. 1).for which no experimental determination is indicated in the paper mentioned. The experimental vitrification temperature T_x can be determined from the intersecting point of the straight sections of the expansion curves. Ref. 1 describes the change in structure below and above vitrification by the functions: $\nu(T) = \nu_e(T)$ and $\nu(T) = \nu_e(T_v - 0.58q\tau_{T_v})$, where ν_e is the linear temperature function, q is the rate of temperature variation, and τ is the relaxation time. For the intersecting point T_x, the following equation

Card 1/2

follows: $T_x = T_v - 0.58q\tau_{T_v}$. Therefore, the experimental value T_x is not identical with T_v. The author shows that T_x can be determined from the curve for the hysteresis of the volume at the same heating and cooling rates. The $\Delta\nu = \nu^- - \nu^+$ for the hysteresis of the volume of polystyrene (Fig.) is shown as an example (ν^- is the volume variation in cooling, ν^+ that in heating). The following equation is derived: $(d\Delta\nu/dT)_{T=T_v} = -(d\nu_e/dT)\cdot 0.11$ (7). $d\nu_e$ is equal to the difference of expansion coefficients in the liquid and solid state, and can be determined from the hysteresis curve. The author thanks G. M. Bartenev for his discussion. There are 1 figure and 4 Soviet references.

ASSOCIATION: Moskovskiy gorodskoy pedagogicheskiy institut im. V. P. Potemkina (Moscow Municipal Pedagogical Institute imeni P. V. Potemkin)

SUBMITTED: January 4, 1960

S/191/63/000/001/013/017
B117/B180

AUTHORS: Bartenev, G. M., Gorbatkina, Yu. A., Luk'yanov, I. A.

TITLE: Thermal properties and methods of measuring thermal expansion, thermal capacity, and thermal conductivity of polymers

PERIODICAL: Plasticheskiye massy, no. 1, 1963, 56 - 64

TEXT: Methods and apparatus for studying the thermal properties of polymers are reviewed in a survey based on papers by Western and Soviet authors for the period 1903 - 1962. The following subjects are dealt with: (1) Measurement of thermal expansion by linear and volumetric dilatometers; (2) determination of thermal capacity by calorimeters; (3) study of the vitrification process on the basis of thermal expansion and capacity; (4) methods of measuring thermal conductivity and thermal diffusion. There are 11 figures, 4 tables, and 65 references.

Card 1/1

SHIRYAYEVA, G.V.; GORBATKINA, Yu.A.; ANDREYEVSKAYA, G.D.

Methods for determining the adhesion of polymers to glass fiber surfaces. Zhur.fiz.khim. 37 no.1:237-241 Ja '63. (MIRA 17:3)

1. Institut khimicheskoy fiziki AN SSSR.

L 12842-63 EWP(e)/EPA(s)-2/EWT(m)/EPF(c)/EPR/EWP(j)/T/EWP(b)/EWP(v) Pc-4/
Pu-4/Pr-4/Ps-4/Pt-10 WW/RM/WH
ACCESSION NR: AP4047222 S/0190/64/006/010/1911/1916

1911-1916

TOPIC TAGS:

L 12842-65
ACCESSION NR: AP4047222

Adhesive strength increased both in the case of AN-2 (by [illegible]) and of [illegible] with the polymer [illegible]

[illegible]

tion of [illegible] ss-[illegible] [illegible]
ly the water resistance (strength after boiling in water [illegible]
reinforced BF-4 plastics. Orig. art. has: 1 figure and [illegible] tables.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AN SSSR)

SUBMITTED: 28Dec63 ATD PRESS: 3124 ENCL: 00

SUB CODE: MT NO REF SOV: 006 OTHER: 004

Card 2/2

L 41828-65 EWP(e)/EPA(s)-2/EWT(m)/EPF(c)/EWP(i)/EPR/EWP(j)/T/EWP(b) Pc-4/
Pq-4/Pr-4/Ps-4 RPL RM/WH/WW UR/0374/65/000/001/0093/0099
ACCESSION NR: AP5011993

AUTHOR: Andreyevskaya, G. D. (Moscow); Gorbatkina, Yu. A. (Moscow); Zamotova, A.V.

SOURCE: Mekhanika polimerov, no. 1, 1965, 93-99

TOPIC TAGS: reinforced plastic, fiberglass, adhesion, polyester plastic, epoxy plastic, polymer physical chemistry

ABSTRACT: A study has been made of the adhesion strength of epoxy-polyester

Card 1/2

L 11928-65

Adhesive strength

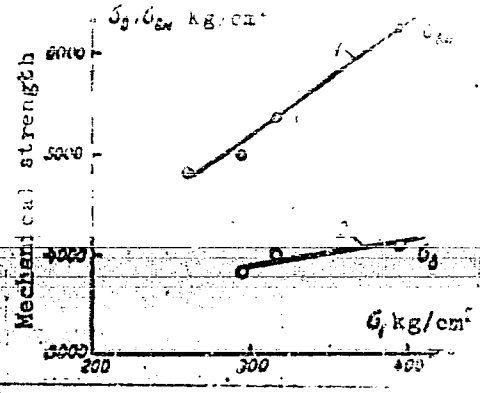


Fig. 1. Effect of glass fiber surface modification on the mechanical properties of glass-reinforced plastics

1 - Bending strength; 2 - tensile strength.

Card 2/5

L 41828-65

ment on the adhesion strength

ethoxysilane; 2 - nonmodified fibers;

Card 3/5

L 41828-65

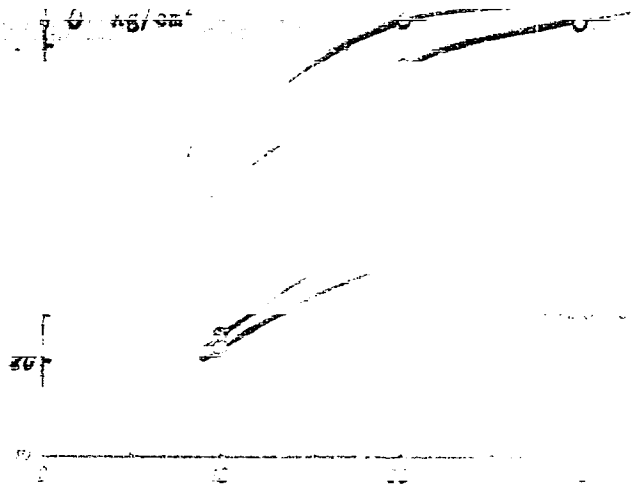


Fig. 3. Effect of additional heat

Card 4/5

The relationship between the adhesive strength and the mechanical properties of [illegible] and tensile tests [illegible]

ANDREYEVSKAYA, G.D.; GORBATKINA, Yu.A.; GUSEVA, N.B.; KISELEV, B.A.; MIKHAL'SKIY, A.I.; STEPANOVA, V.N.

Structural change in a network polymer under the effect of an active organosilicon monomer. Vysokom.soed. 7 no.7:1254-1257 Jl '65. (MIRA 18:8)

1. Institut khimicheskoy fiziki AN SSSR.

GORBAT'KO, Ivan Fedorovich , slesar'-sborshchik; CHMIL', L.N., red.; LIMANOVA, M.I., tekhn. red.

[Our contribution to the seven-year plan] Nash vklad v semiletku. Khar'kov, Khar'kovskoe knizhnoe izd-vo, 1962. 36 p. (MIRA 16:8)

1. Khar'kovskiy turbinnyy zavod, Brigadir brigady kommunisticheskogo truda (for Gorbat'ko).
(Kharkov—Turbines) (Efficiency, Industrial)

GORBATKO, P. A.

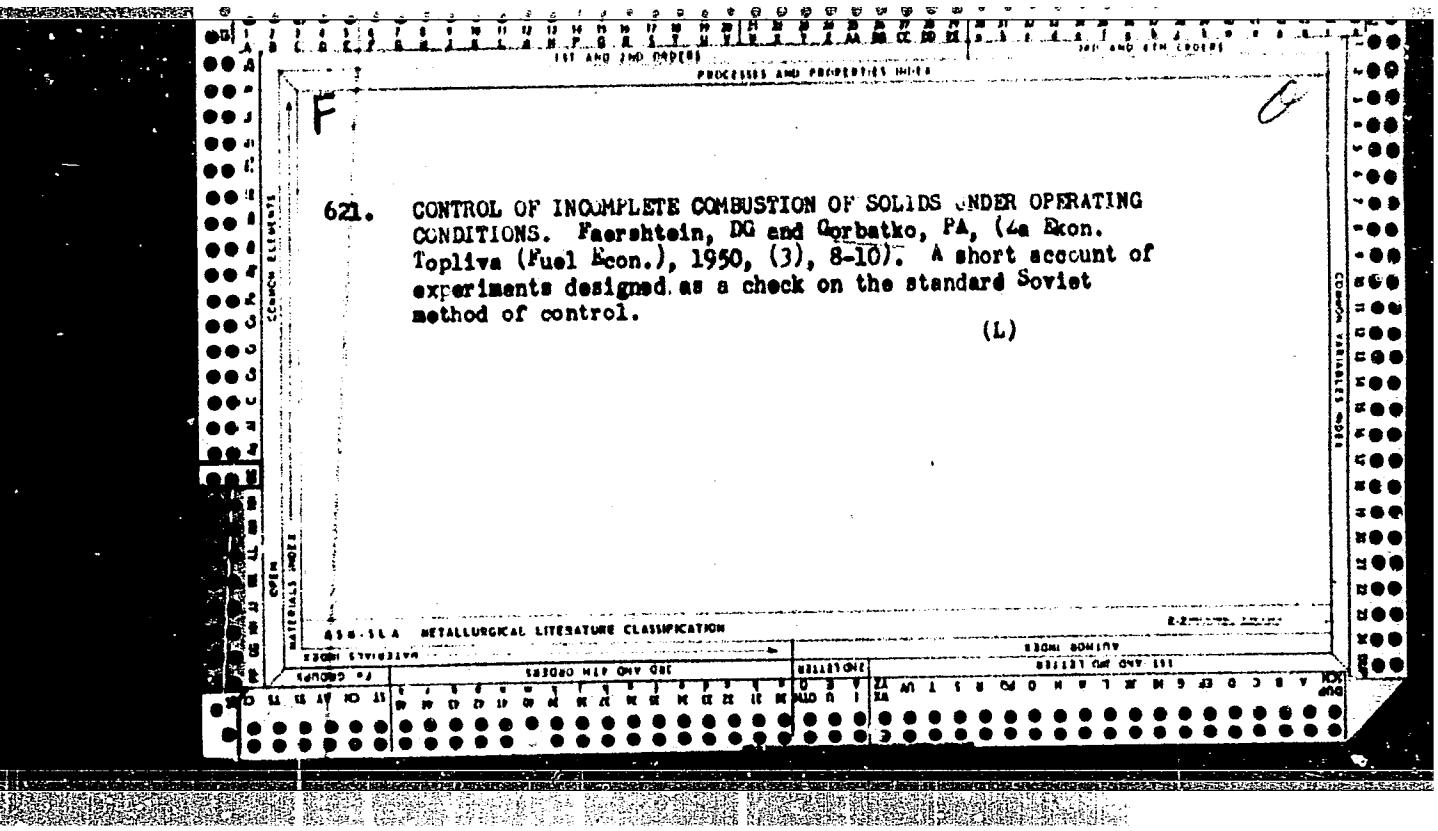
USSR/Mining Equipment Sep 48
Lignite

"Investigating the Work of a Low-Productivity Mining Pulverizer on Damp Lignite," Dr D. G. Fayershteyn, P. A. Gorbatko, Engr, 3 pp

"Za Ekonomiyu Topliva" No 9

As a result of experiment conducted, recommends the low-productivity mining pulverizer (less than 1-1.5 tons/hr) for work on damp lignites.

35/49T75



F

621. CONTROL OF INCOMPLETE COMBUSTION OF SOLIDS UNDER OPERATING CONDITIONS. Faershtein, DG and Gorbatko, PA, (4a Ekon. Topliva (Fuel Econ.), 1950, (3), 8-10). A short account of experiments designed as a check on the standard Soviet method of control.

(L)

GORBATKO, P.A.

2755. WORKING CHECK ON COMBUSTIBLES IN (FLY) ASH. Fasrahtein, P.O., Naimark, I.K. and Gorbatko, P.A. (Energetik (Pwr Engr, Moscow), Mar. 1954, 1-4). Arrangements for sampling fly ash in flue gases of pulverized fuel-fired boilers are described. (L). 62

①

FAYERSHTEYN, D.G., kandidat tekhnicheskikh nauk; NAYMARK, I.K., inzhener; GORBATKO, P.A., inzhener.

Operating control of a mechanical incomplete combustion of fuel. Energetik 2 no.3:1-4 Mr '54. (MLRA 7:5)
(Furnaces--Construction)

VYSOTSKAYA, A.I., inzh.; GORBATKO, P.A., inzh.; STANKEVICH, G.L., inzh.; FAYERSHTEYN, D.G., kand.tekhn.nauk

Complete analysis of blue gas in the combustion of natural gas under steam boilers. Izv.vys.ucheb.zav.; energ. 2 no.12: 85-89 D '59. (MIRA 13:5)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina Predstavlena kafedroy kotlostroyeniya.
(Gas as fuel)

RABINOVICH, O.M.; FAYERSHTEYN, D.G.; GORBATENKO, V.Ya.; GORBATKO, P.A.

Effect of the reducing of ball loading on the efficiency of a drum-type ball mill. Trudy KhPI, Ser.mash. 19 no.5:51-59 '59. (MIRA 14:9)

(Coal, Pulverized--Equipment and supplies)

L 10027-67 EWT(1)/EWP(m) IJP(c)
ACC NR: AP6034577 SOURCE CODE: UR/0382/66/000/003/0029/0038

AUTHOR: Bertinov, A. I.; But, D. A.; Gorbatkov, S. A.

44

ORG: none

TITLE: Conical magnetogas-dynamic flow with the Hall effect in an axial magnetic field

SOURCE: Magnitnaya gidrodinamika, no. 3, 1966, 29-38

TOPIC TAGS: magnetogas dynamics, magnetogas dynamic flow, Hall effect, axial magnetic field, transverse magnetic field, Faraday effect

ABSTRACT: The authors analyzed a conical magnetogasdynamic flow of an ideal incompressible conducting gas with the Hall effect in an axial magnetic field. The power supplied by the electrodes is produced through the Faraday and Hall effects. The magnetic Reynolds number is assumed to be much less than unity. Analytical relationships have been derived permitting an estimation of the basic electrodynamic and power energy characteristics of flow. Optimization is carried out for output power relating to various parameters. It is shown that by the specific power, the above-mentioned flow, is less than that of MHD flows in a transverse magnetic

Card 1/2 UDC: 533.95:538.4

L 10027-67

ACC NR: AP6034577

field with power takeoff. However, there is no need for insulated duct walls when the above-mentioned effect is involved. It leads to an increase in the permissible temperatures of the working medium simplification of duct design, and increased reliability of the device. Orig. art. has: 4 figures and 55 formulas. [Based on authors' abstract]

SUB CODE: 20/SUBM DATE: 16Feb66/ORIG REF: 002/OTH REF: 001/

Card 2/2 egk

L 13361-66 EWT(1)/EWP(m)/T-2/EWA(m)-2 IJP(c)
ACC NR: AP6001675 SOURCE CODE: UR/0281/65/000/006/0102/0110

AUTHOR: Bertinov, A. I. (Moscow); But, D. A. (Moscow); Gorbatkov, S. A. (Moscow)

95
B

ORG: none

TITLE: Axisymmetrical linear magnetohydrodynamic flow with the Hall effect in a two-component field

SOURCE: AN SSSR. Izvestiya. Energetika i transport, no. 6, 1965, 102-110

TOPIC TAGS: magnetogasodynamics, magnetohydrodynamics, Hall effect, Faraday effect, MHD generator, axisymmetric flow, EMF, electrode

1,44,55

ABSTRACT: These known magnetohydrodynamic-generator (MHDG) configurations are briefly examined: (1) Continuous-electrode channel, Faraday emf; (2) Sectionalized-electrode channel, loads fed with Faraday emf's; (3) Sectionalized-electrode channel, Hall emf; (4) Montardi scheme. The potentialities of these two combined configurations are considered: (5) A coaxial channel with a two-component magnetic field in which the emf is generated by both Faraday and Hall effects; no insulating wall is needed, and a small-size superconducting magnetic system is

Card 1/2 UDC: 533.99:538.122

2

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ACC NR: AP6001675

applicable; (6) Same, but the electrodes are sectionalized as in (2). The latter two schemes are explored analytically. It is found that: (1) Scheme 5 with continuous electrodes obviates the difficulties connected with insulating walls and inserts in the channel; however, its specific (per unit volume) electric power (maximal at $\beta = 1-2$) is only 1/12 to 1/3 as high as that in other MHDG schemes; the specific power can be stepped up considerably if a higher temperature -- and, therefore, higher gas conductivity -- be used; (2) The characteristics of scheme 6 approach those of scheme 3; however, scheme 6 has no advantages stemming from the absence of insulating inserts; (3) The axial symmetry of the working flow and the applicability of simple torus superconducting magnetic systems are the two advantages of magnetohydrodynamic flows using the Hall effect and two-component field. Orig. art. has: 5 figures and 38 formulas.

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